



# Connecting Research and Learning in the Cloud

Arizona State University/Smithsonian Institute Connect Students and Teachers with the Jungles of Panama

## THE PROJECT

Imagine studying the behavior and structure of a rare insect in its Panamanian rain forest environment without ever leaving the classroom. That's exactly what students who participate in Arizona State University's (ASU) distance learning programs were able to do. Incorporating ASU's Biology, Plant Biology and Microbiology departments, the School of Life Sciences (SOLS) at ASU provides a wide range of experiences for students that build on the university's burgeoning role in biotechnical and biomedical research.

In keeping with its goal of expanding opportunities for students and faculty, SOLS launched a virtual classroom program in which students in Arizona were able to see, speak with and exchange information face-to-face and in real time with staff scientists and researchers at the Smithsonian Tropical Research Institute (STRI) in Panama, and with experts at Smithsonian headquarters in Washington, D.C.

## THE PROBLEM

Though virtual education is fast becoming a regular part of higher education curricula, most methods of delivery present troublesome limitations to the academic world. Until now, achieving the level of video and audio fidelity that is desired for teaching, demonstrating and exchanging ideas and information has not been possible without purchasing expensive, high-maintenance equipment that is financially or logistically unfeasible. Consumer-grade video communication products that allow point-to-point conferences to be accessed via the commodity Internet are typically unsuitable because of their low quality and inability to support multiparty video calls. For researchers who need to observe and conduct their work in the field while collaborating with others around the world, low-latency, high-resolution and reliable videoconferencing via a dedicated research and education (R&E) network such as Internet2 is an essential tool to their success.

**RESEARCHERS COLLABORATING WITH OTHERS AROUND THE WORLD NEED RELIABLE VIDEOCONFERENCING TO SUCCEED**

Further, institutions need to flexibly and responsively deliver new applications for broad and rapidly changing user needs like the ASU-STRI collaboration. Often, scalable platforms for the academy aren't available, or offered in unfavorable consumption models. Also, "off-the-shelf" offerings often don't meet the security, reliability and accessibility standards



## SOLUTION SUMMARY

STRI is one of the leading biological research institutions in the world. With facilities used by more than 900 visiting scientists from academic and research institutions globally, collaborations focus on understanding tropical habitats and biological diversity. Further, ASU's "Current Topics in Tropical Biology" class features virtual lectures by STRI and ASU experts, who also work to mentor students on-site in Arizona and in Panama.

One important goal of the ASU-STRI collaborative is to promote global educational research and discovery opportunities in the areas of biofuels, social structure, sustainability and species diversity. ASU utilized the Internet2 NET+ Vidyo offering delivered by IDSolutions' Flame service as a fast and secure way to ensure that the 3,300 miles of distance between Arizona and Panama does not impede students' ability to learn about and conduct biological research effectively.

Via the Internet2 NET+ initiative, institutions like ASU are able to swiftly deploy secure, reliable and integrated cloud collaboration solutions like Vidyo more responsively to advance scholarly and research pursuits.

## COLLABORATORS

- Arizona State University (ASU) School of Life Sciences (SOLS)
- Smithsonian Tropical Research Institute (STRI)
- Vidyo
- IDSolutions

## PRODUCTS & SERVICES

- Internet2 NET+ Vidyo  
(includes Flame by IDSolutions)

## COMMUNITY RESOURCES

- Internet2 NET+ Initiative





required for higher education's users. And standard offerings frequently don't integrate core identity assets like single-sign-on or don't meet network architecture requirements, both of which provide the advanced usability and performance necessary in R&E. Based on their participation in the Internet2 community, ASU saw an opportunity for a broader solution to be offered to peer institutions and thousands of public K-12 schools in the United States, and proposed the service for inclusion in the Internet2 NET+ portfolio.

## THE SOLUTION

Although ASU-SOLS evaluated a number of video communication and collaboration products to enable audio and video interactions between the different sites, ultimately only one solution successfully enabled students, teachers and scientists to engage in high-quality face-to-face exchanges from remote jungle locations. That was Vidyo.

**VIDYO ENABLED STUDENTS, TEACHERS AND SCIENTISTS TO ENGAGE IN HIGH-QUALITY, FACE-TO-FACE EXCHANGES FROM REMOTE JUNGLE LOCATIONS.**

Charles Kazilek was Director of Technology Integration and Outreach at ASU's School of Life Sciences during this project and was responsible for reviewing and selecting the technology for the ASU-STRI program. He worked closely with the Smithsonian and STRI to establish and develop a network that extends far beyond the bounds of the university. According to Kazilek, "We needed to demonstrate that this solution could be taken to extreme limits and still work to the standards that we required. It had to link telepresence to scientists in remote areas—environments that require something very flexible and very portable. We wanted to see how far we could literally penetrate into the jungle and bring back that experience to our students and see how far we could push Vidyo. Could we run it on 3G? Can we get it into the jungle? Can we get it into the middle of an island in the middle of the Panama Canal? What we found is—yes, we can!"

**AFTER ASU'S INDIVIDUAL SUCCESS IMPLEMENTING VIDYO, THE INSTITUTION SPONSORED THE CLOUD SOLUTION TO BE EVALUATED FOR INCLUSION IN THE INTERNET2 NET+ PORTFOLIO**

After ASU's individual success implementing Vidyo, the institution worked with IDSolutions and Vidyo to create a tailored cloud deployment specifically for the research and education community to be evaluated for inclusion in the Internet2 NET+ portfolio. Focused on providing secure and reliable cloud mobility to higher education's diverse users, NET+ is an R&E community-driven initiative, which employs a rigorous **peer-driven evaluation process**. R&E institutions and cloud service providers work together to develop offerings that maximize deployment efficiencies and minimize business and legal challenges, financial costs, and technology risks of migrating from on-campus to cloud-based solutions.

Throughout the NET+ Service Validation process, the Vidyo communications and collaboration platform was found to meet all community security, accessibility, integration and performance standards. Vidyo also offered excellent mobility and performance in remote field settings and delivered ease-of-use via a simple desktop interface, also offering multiple high-quality simultaneous connections.

## THE RESULT

Today, all of higher education and thousands of K-12 schools can join the students at ASU's School of Life Sciences and use Vidyo on a regular basis for advanced collaboration and learning.

ASU users have found the Vidyo platform to be uniquely suited for advanced education and research applications, such as the partnership between ASU and STRI, as it provides:

- Videoconferencing using standard PC and Macintosh desktop/laptop systems and iOS- and Android-based mobile devices, providing ubiquitous access along with the ability to conduct planned and ad hoc meetings
- Affordable options for classrooms, laboratories, office and field locations
- Exceptional quality, as Vidyo's technology automatically adjusts to allow the highest level of audio and video fidelity based on endpoint equipment and Internet connection speed

- Recording and archiving of sessions via VidyoReplay for viewing and extended use
- Desktop-sharing during a meeting for collaboration purposes
- Live video windows as well as prerecorded video
- Integration with existing legacy H.323 room systems

Thanks to the work of ASU and other institutions who participated in the NET+ Service Validation, the **NET+ Vidyo service delivered by IDSolutions** offers a standardized, low-cost, enterprise video communications platform widely available to Internet2 members with:

- Singular business and legal terms for quick deployment
- Security and accessibility standards compliance
- Core InCommon federated identity integration enabling users to sign in to the service with campus credentials
- High-performance architecture for advanced Internet2 Network delivery providing high-definition desktop video experiences
- Commitments to an ongoing technology roadmap informed by Internet2 members—dedicated to key service integrations and future improvements to meet evolving user and enterprise needs

**NET+ VIDYO IS NOW A STANDARDIZED, LOW-COST  
ENTERPRISE VIDEO PLATFORM AVAILABLE TO MEMBERS  
FOR QUICK DEPLOYMENT**

ASU is making further contributions to its peer community by working to extend the reach of the ASU-STRI program so that it can benefit students who would otherwise not have access to this valuable resource. The educational experiences being created by the ASU-Smithsonian virtual learning sessions are expected to be available to other schools and learning facilities worldwide.

Accolades for Vidyo also extend to industry awards, as it recently received **Frost & Sullivan's 2013 Video Conferencing Technology Leadership Award** after a thorough review and evaluation of the top three global video conferencing providers. Frost & Sullivan's "Best Practices Research Report" analysis stated

*"Vidyo's market-leading innovations continue to demonstrate its technology lead and commitment to make video conferencing a ubiquitous technology."*

## ABOUT

### Arizona State University (ASU) School of Life Sciences (SOLS)

Our mission is to inspire and transform life science students by providing an innovative learning experience that prepares them to thrive in a dynamic and demanding world. We aim to improve life by stimulating scientific discovery and solving critical problems at the intersection of the life sciences and society.

### Smithsonian Tropical Research Institute (STRI)

STRI is a unit of the Smithsonian Institution located in the Republic of Panama, established to further the understanding of tropical nature and its significance to the world at large, to train students in tropical research, and to promote conservation by making the public aware of the beauty, importance and fragility of natural settings in the tropics.

### Internet2 NET+

Focused on accelerating secure and reliable **cloud mobility** for higher education's diverse users, Internet2 NET+ is an R&E community-driven initiative. Through a rigorous **peer-driven evaluation process**, R&E institutions and cloud service providers work together to develop offerings that maximize deployment efficiencies and minimize the business and legal challenges, financial costs, and technology risks of migrating from on-campus to cloud-based solutions.

### Vidyo

Vidyo, Inc. pioneered Personal Telepresence enabling natural, HD multi-point videoconferences on tablets, smart phones, PCs, Macs, room systems and telepresence installations that interoperate with legacy H.323 and SIP endpoints. Vidyo's infrastructure makes it a leading provider of affordable cloud-based videoconferencing technology. The VidyoWorks™ platform allows solution providers to integrate high quality visual communications into their applications, leveraging Scalable Video Coding (SVC) and Vidyo's patented VidyoRouter™ technology. Learn more at [blog.vidyo.com](http://blog.vidyo.com) or follow Vidyo on Twitter [@vidyo](https://twitter.com/vidyo) and on [Facebook](https://www.facebook.com/vidyo).

### IDSolutions, Inc.

IDSolutions' award winning design and integration capabilities combine exceptional quality, user simplicity and manageability to make video communications a productive, true-to-life experience. When it comes to providing visual collaboration, few integration companies can compete with our video offerings and customer support for the business, medical, government and educational community. IDSolutions—A clear vision of communications.

Interested organizations can sign up now for a free **Flame NET+ Vidyo Trial** by contacting Sandy on the NET+ Vidyo adoption team at: [scassella@e-idsolutions.com](mailto:scassella@e-idsolutions.com).

To learn more about the Vidyo technology or VidyoWorks™ platform and API, contact a Vidyo expert at [info@vidyo.com](mailto:info@vidyo.com).

To learn more about Internet2 and the NET+ initiative, contact Ben Fineman at [netplus@internet2.edu](mailto:netplus@internet2.edu).